Ethnoecological contributions to the study of disaster-resistant building cultures: the case of Cap-Haïtien, Haiti.

Léa Génis

Léa GENIS
lea.genis@yahoo.fr
Master 2 Student, Environment, Development, Territory and society
National Museum of Natural History, Paris
CRAterre Intern

Disaster-resistant building cultures: the ways forward,
Organised by CRAterre laboratory / Research Unit AE&CC
National School of Architecture of Grenoble, May 27 - 28, 2013

Ethnoecological contributions to the study of disaster-resistant building cultures: the case of Cap-Haïtien, Haiti.

Within the ReparH (building back safer in Haiti) research program[1] and a Master's degree internship of the French National Museum of Natural History[2], an ethnoecological field study has been completed in Cap-Haïtien city, Haiti. One among the objectives was to complete the ways forward on disaster-resistant building cultures, while developing a methodology which could combine the "ethnoecological" and "construction cultures" approaches. The town of Cap-Haïtien is an historical city characterized both by recurrent hazards (floods and fires) and over-publicized upcoming risks (earthquakes and tsunamis). It offered therefore a special context related to these concerns. The research has focused on the expressions of local construction cultures, housing, body of knowledge, know-how and representations related to the built environment and natural hazards.

Conceptual framework

At the confluence between social and natural sciences, ethnoecological approach focus on the study of Traditional Ecological Knowledge (TEK): cumulative body of knowledge, know-how, practices and representations involved in the multiples interactions between human societies and their environment (Nakashima & Roue, 2002). While depending on intangible learning processes, TEK embody in the material activity of building. Ethnoecology enables to describe them, along with an analysis of vernacular categorizations concerning housing, building, materials, and natural or social hazards (Friedberg, 1974). It can also bring

[1] A scientific collaboration between CRAterre, the National School of Architecture of Grenoble (ENSAG) and the Joseph Fourier University (UJF) supported by the French National Research Agency (ANR) to provide scientific support to Haiti (July 2010 – January 2014).
[2] Environnement, Développement, Territoires et Sociétés, spécialité Anthropologie de l'Environnement, département Hommes Natures Sociétés du MNHN

forward the way people memorize risks and question the transference and redesign of associated knowledge and skills.

Indeed, when considering the notion of risk, we have to question its conceptions, which are both linked to objective quantifications and socially constructed, through memories and personalities, towards events distinguished by their uncertainty (Botterill & Mazur, 2004). Natural events or hazardous situations are moreover experiences embedded in social life, and impact memory, perceptions, individual and collective practices (Oliver-Smith, 1996 ; Revet, 2011). The questions raised are the following: What can create an "event" locally. How do we live with risk, that is to say both with its memorial construction and with the many ways it is appropriate and used? What are the practices related to these conceptions and the strategies constructed to prevent damages?

Methods applied for data collection

Within the field study organized in Cap-Haïtien, traditional tools of ethnology and technical anthropology have been selected, together with the methodology developed by CRAterre (Garnier *et. al,*. 2011 ; Caimi *et al.* 2013). These tools help to analyse disaster-resistant building cultures, tanks to a combination of observation and interviews with the stakeholders related to construction (inhabitants, builders, institutional stakeholders) (Table 1). Methodology must be not prescriptive, as it is not intended to impose a setting to the field, but to deduce the principal issues, and to help unattended categories to emerge. It implies a deep immersion on the field, which is the only way to contextualize the related observations and discourses, so as to understand representation systems in which disaster-resistant building practices are included.

Table 1: Tools used for the ethnoecological study of disaster-resistant building culture in Cap-Haïtien (may 2012)

Tool	Proceeding	Sample	Goals
Systematic observation	Observation checklists Record sheets Pictures	Houses Construction sites Urban context	Completing accurate and comparable surveys : - Disaster-resistant building techniques - Operational sequences
Participant observation Informal talks	"Being involved", live with people. "perceive, memorize, note" Question the practices noted with the informants		Understand : - Social structures, interactions, technical processes and their context of production - What cannot be verbalized: embedded know-how and skills, transmission processes… - How do people « live with risk »
Semi directive interviews	Interview guidelines Audio recordings Transcripts Discourse analysis Thematic review	Officials Builders Inhabitants	Understand the meaning actors give to their practices, the ways of justifications and expectations Highlighting unidentifiable categorisations Understand how memory and conception of risks are expressed = have a representative view of the social context, with interconnected interviews to understand the relationships and interactions
Focus group	Debate Debate guidelines	About 10 persons interested by the topic	Understand the background of major risks and events, places and sites Emphasize the interaction Understand how collective discourses can be built around natural hazards, opposing point of views Bring together news ideas and opportunities

Sample of results in Cap-Haïtien

Along the analysis of field data, different points of interest have emerged related to the study of disaster-resistant building cultures in Cap-Haïtien.

Local appropriations of risk (Langumier, 2008) have been noted, associated with different values related to the notion of « risk ». The survey shows how risk is linked with different corpus of justifications (natural hazard, blaming of the institutions or of the carelessness of the inhabitants). He can also be included in power plays between inhabitants and public authorities, or later move to revalue ancient built heritage, seen as safer thanks to its durability and presume resistance towards time and disasters. This value of durability emerges also when analysing the categorisations and expectations related with building materials and techniques: they lead to an ethic of mineral and strength, rooted in practices and representations.

Once that risk categorization has been understood, we are able to examine how they are included in the construction practices. For instance, we can consider the evolution of houses construction, and note the emergence of disruption points, linked with natural events, and translated into technical shifts. In Cap-Haïtien, the progressive depreciation of wood for heavy masonry in bricks, rubble stone and eventually concrete blocks is not only linked to an aspiration to « modernity », but to the protection against the potential damages caused by fires and cyclones. More recently, the earthquake of 2010, even if it did not happen directly in the city, led to a new disruption point, affecting the overvaluation of the strength associated with concrete. In a context highly submitted to international technical influences, the valuation processes are to maintain a "rigidity approach" towards seismic construction, which become the focus point of constructive expectations.

Some tools for the analysis of disaster-resistant building cultures?

These early results show how ethno-ecological approach of disaster-resistant building culture enables us to understand the way actors seize natural hazards and risks, both in the social and technical sense, through the input of complex system of knowledge that are sometimes difficult to describe through systematic observation only. It reminds us to take a closer look at the production environment of constructive practices, which are often in tension between local appropriations and global need of formalization.

However, in order to have a clear understanding of these elements, ethnological study requests a long term immersion on the field. Immersion that is sometimes as difficult to formalize as the knowledge studied itself. In implies therefore a constant reflective and

critical exercise on analysis and data production setting, so as to be able to report them in the final presentation. Thus, the time needed for the survey can sometime mismatch with operational objectives in short term. Nonetheless, it seems to be essential to understand the various and subtle features that characterize building cultures.

Eventually, the results of this work should be even more accurate when included in an interdisciplinary study than would link both the ethnological and architectural approaches, so as to describe precisely as much technical processes as the representation systems they are included in. Hence, this interdisciplinary work would help develop new models of analysis, find solution to match research agendas and open the ways forward to worth exploring routes.

Bibliography

Botterill L. & Mazur N. 2004. *Risk & risk perception, a literature review*. Rural Industries Research and Development Corporation.

Caimi A., Vieux- Champagne F., Garnier P., Guillaud H., Moles O., Grange S., Sieffert Y. & Daudeville L. 2013 [à paraitre]. Traditional and scientific knowledge for a sustainable vulnerability reduction of rural housing in Haiti. International Conference Structure and Architecture, 24-26 juillet 2013.

Friedberg C. 1974. Les processus classificatoires appliqués aux objets naturels et leur mise en évidence. Quelques principes méthodologiques. *JATBA*, vol. XXI n°10-11-12 : pp. 313-334.

Garnier P. & Moles O. (dir.). 2011. *Aléas naturels, catastrophes et développement local.* CRAterre Editions, Grenoble.

Langumier J. 2008. Appropriations locales de la tragédie collective. Approche ethnologique des inondations de novembre 1999 à Cuxac d'Aude. *Développement durable et territoires. Économie, géographie, politique, droit, sociologie*. [En ligne] URL : <http://developpementdurable.revues.org/6892> (consulté le 10 mai 2013).

Nakashima D. & Roue M. 2002. Indigenous Knowledge, Peoples and Sustainable Practice. In TIMMERMAN, M. *Social and economic dimensions of global environmental change, Encyclopedia of Global Environmental Change,* vol. 5. John Wiley & Sons, Chichester.

Oliver-Smith A. 1996 Anthropological Research on natural Hasards and Disasters. *Annual Review of Anthropology.* Vol 25 : pp 303-328.

Revet S. 2011. Penser et affronter les désastres : un panorama des recherches en sciences sociales et des politiques internationales. *Critique internationale,* 52, 157.